PSYCHO-PHYSIOLOGICAL TRAINING OF AN IDIOTIC HAND

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Fig. 1.

Fig. 2.

Fig. 3.

Fig. 4.

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SOME idiots are more afflicted in their minds, even to the verge of insanity, and others in their motor and sensory functions, even to the point of paralysis or of anæsthesia, but in either form their treatment must proceed more from the training of the senses, in order to improve the mind, than from the education of the mind in view of developing the sensory aptitudes.

The following case illustrates this point. In order to save time I brought with me the portraits of this child: 1st. Six months old, healthy. 2d. Eighteen months old, after convulsions. 3d. Aged seven years, with the characteristics of idiocy enlarged, particularly those furnished by the hand; and, 4th. One year later, showing the improvement brought on by the well-directed devotion of an intelligent woman.

Accurate as are these photographs by a talented and faithful artist, they do not give the full attitude of the child, his weak standing, want of support, erratic walk, unclean habits and absolute impermeability to the ordinary means of education.

His appetite was good, satisfied coarsely; he was subject

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to rush of blood to the head, sudden redness of the ears and fits of passion, during which he would bite his hand, or, by a sort of insanoid propensity, strike his brother and directly kiss him with the marks of the most sincere affection. (For something similar to this see the psychological study of a fated hand by Gérard de Nerval, in *La Main Enchantée.*)

The hand of R. is small, the nails short and brittle, fingers as if unfinished, no power, no skill, only automatic movements, mainly from the wrist. How well it shows that there are in idiocy muscular incapacities as well as intellectual ones—incapacities which may be regional, also specific in each region.

To make the hand of R. act on command was at first out of question. He could not put it or the fingers in any given attitude. He could not rotate on command that wrist so nimble when striking or vibrating automatically. He could obey the movements of elevation and abduction of the arm, but not always, nor with anything like precision.

Therefore his teacher had to begin the training of that hand from the shoulder by movements which, starting from the elevators of the arm, would involve successively the muscles of the arm and the hand. Thus, by a series of operations, whose willed or obedient starting point descended gradually from the spine, the child became capable of moving his hand and fingers by imitation at first, and *proprio motu* for simple willed operations, later.

These operations of the hand are too many to be enumerated, but can be comprised under several heads, abstractly of their object; as to hold passively and take hold willingly; to lift, grasp, support, let go, throw, catch, collect, trace, delineate, compress, curb, break, cut, pierce, pass through, model, assemble, group, combine, connect, unite, fasten, separate, divide, tear asunder, peel off, cut with knife, scis-

sors, saw and a hammer, pull in, up, down, away. And, if we consider that so many operations have to be taught in relation to an infinite number of objects, as, for instance, cutting hundreds of bodies of variable density and modes of resistance, besides all the minutiæ of the acts of common life, of which R. was incapable.

The teaching of these operations (most of which ordinary children learn at a glance, or by a *tour de main*, and soon entrust to automatism) was out of the question. Whereas the training of physiological aptitudes engaged in them was the question.

The intellectual value of these exercises (brachial, manual or digital) will depend on their precision, rapidity, unity, singleness or complexity, as the case and the period of training will indicate. The problem is this: How shall the child notice our movements, take an image of them transmit this image with the order for its execution to his extremities, in the most accurate manner and by a non-interrupted act of volition (even when he does not want to do anything). Here is the mind disengaged from matter by another mind; that is one of the operations of the psycho-physiological training.

Now for the application.

In the first place, the movements commanded to R. were those commencing nearer the spine; the *Trainer* gradually extending the operations of the will (the will communicated to the pupil by immitation or command) to the groups of muscles approaching the extremities. Thus the limb in training, not only became capable of a few willed movements of totality—later applicable to a great number of operations and convertible into smaller movements of the farther extremities—but the mind being drilled to be carried over regions previously ruled by automatism alone, extended its dominions and circulated as if at home, from the

great centres to the most delicate groups of sensitive and contractile tissues at the periphery, and soon thence reached centripetally.

To illustrate the difference of ability of the hand during these forms of training, according to the origin of the impulse, I notice the freedom of the hand of R. when driving nails in a board with a hammer—a movement of the arm and wrist—as against the sliding of the pin he holds, with the intention of piercing holes in a paper with but rare success—a movement confined to the last phalanges of two fingers.

In the second place, when these reciprocal conductions between the mind and the periphery, and mainly from the periphery to the centre were taking place, the invitations to the periphery, not only to enter in action, but to provoke the centres of intelligence, were incessant. Let us mark it: the hand was many times a day trained, either with or without the help of the other senses, to act and to feel, and to extend constantly with the range of its own operations that of the mind.

I have hardly the place here for the necessary remark that the interference of another sense—say vision—may be favorable to the development of the one sense in training—say here the muscular or tactile—or may prevent it, by offering to it, instead of a co-operation, a substitute, as the touch does rightly for the blind who *cannot see*, and wrongly for the idiot who *will not look*.

With a skillful trainer of idiots, who knows how to avoid this substitution, the co-operation of two senses is precious. By it the idiot passes from the tactile sensations to the visual ones, and from the perception by the eye to the execution by the hand. There is a whole volume to be told on this single psycho-physiological process.

To resume, the main point is to rapidly bring the will to-

wards the sentient and efficient extremities, and conversely.

But next to the rule, which suits all, come the exceptions to suit the idiosyncrasies. The anomalies of the hand of R. viz: short fingers, ill-supported by the nails, and the lifeless flabbiness of the integuments commanded to his teacher, Miss M. E. Mead, to invent constantly and to use perseveringly means calculated to elongate and strengthen the fingers.

In marked contrast was the training of the hand of Eth., a girl æt. 6.

That hand was rigid, unyielding, unsteady (somewhat choreic). Her teacher, Miss M. Coe, used long *rests* previous to short exercises of precision, and I have no doubt I will on my return, find that hand ready for delicate operations.

But it may be asked, what has been done all this while for the mental culture of the principal subject of this notice? Has he learned to read, write, and the sequel? No, his hand has learned to help himself, to amuse himself, to not bite itself, nor to slap his friends; though it is yet sometimes subject to its automatic agitations. His tact has been cultivated to the point of being conscious of the ordinary variations of the temperature, of water, food, etc.; and of recognizing and naming (without the help of sight) about fifty things by their shape, and quite as many by their texture. His eye—after his touch—has been drilled to appreciate the typical forms in substance at first, and later painted, delineated and hardly indicated; then to cut the same out of paper, etc. In regard to the appreciation of dimensions R. can find out objects gradually shorter or longer, and arrange them accordingly. (This training of the eye helped by the tact—the reverse of the precedent exercises—gave occasion for a little comedy which has not lost yet its actuality in some parts of the world. R. was getting along with his

experimental study of dimensions, taking pleasure in measuring all sorts of things at home and at the promenade by decimetres and centimetres, with the metre I had given him, which he kept proudly in his pocket; when his father, who had made his fortune by the yard, said that he wanted his son to abide by it. His teacher had to return to me the obnoxious metre.)

But does R. know at least his letters? No. But having shown a taste for flowers he goes to the florist almost every day. There he has learned to scent, to recognize and name about thirty flowers without fail and more with less certainty;—all fragrant, be it noted. But the main point gained in his contact with flowers, one which the knowledge of the letters could not have given him, is that not only he knows, but loves the flowers; is ready to plant and nurse them; treats his little bouquet on the mantlepiece with fresh water every morning, after coming to breathe its scent when handling it with a perfect delicacy.

This phase of his sensorial education seems to have had a decided influence on his constitution, diminishing the cerebral congestions, the automatism, and the outbursts of temper, particularly in his family intercourse. Altogether his moral improvement is perfectly reflected in the mellow tenderness of his fourth and last portrait.

But when will R. be taught to read? When his senses will have conveyed to his mind more correct objective impressions. His store of ideas, of names, qualities and actions is yet too small. He is in this respect like the peasant who knows so little that he needs neither letters to register his knowledge nor figures to calculate his small earnings; so R. is yet unalphabetic, but when he will be put in possession of the art of reading, he shall not be exposed by an imbecile teacher to read what he does not understand, because for a long time he will be taught to read only what he will

have written, and write only what his mind shall dictate to his hand. These are a few of the established features of the physiological education of the child who is yet in course of training, and whose training has been concentrated mainly on his most deficient organs, the hands. Next winter his eye, whose functions are yet very imperfect, will be the central object of his intelligent teacher.

Here we can part with the case, but not suppress the remarks which naturally issue from results: Rapid harmonization and filling up of the cranium, particularly in its lower frontal region; moralizing and intellectualizing realising influence of the training of a special sense. This form of training the young are still taught to consider as having materialistic tendencies, whereas it has proved in the case of R. and of many children of his class, to be eminently idealistic.

We are so used to locate idiocy in the brain that the idea of an *idiotic hand* seems, at first enunciation, like a grammatical blunder. But we become reconciled to the idea the moment we see the mutual dependence of the centres and the periphery, with a greater possibility of acting on the centres from the periphery than on the periphery from the centres, at least in the period of growth.

That the *initiative* of a certain order of capacities, therefore of antipodal incapacities, resides in the periphery and sensibility.

Therefore, instead of referring all the *initiums* to the *basilic* brain, or co-locating it in the triumvirate brain, spinal cord and sympathetic, we must recognize the power of the million of peripheric brains to give the impulse as well as to receive it.

If the idiot whose case is represented to you has improved under the care of his good teacher: if hundreds of others improve in the public institutions (under the care of women

whose names are never pronounced with sufficient respect), the sovereignty of the brain is at an end, and the new physiological doctrine of decentralisation contains in germ a new doctrine and new methods of education.

Since this paper was read I have received the following confirmation of the views herein supported:

New York, 23, 7, 1879.

"Returned from my month's vacation, R. gave me a hearty welcome, and seemed quite anxious to work again. As yet I do not see that he has forgotten anything previously taught. His hands show that they have done nothing. I was pained to find them so soft and lifeless.

E. M. M."

Thus, what was gained mentally through the senses—mainly through the hand—remained acquired to the mind. But the training of the hand having been too soon discontinued, the hand relapsed in its former "lifelessness."

Explanation of the plate lithographed from photographs:

FIG. 1.—R. at the age of 6 months: healthy.
FIG. 2.—R. at the age of 18 months, after convulsions.
FIG. 3.—R. æt 7 years, with idiotic look and hands.
FIG. 4.—R. one year later, after psycho-physiological training.